

CLAIMS

1. A biosensor cartridge for storing a plurality of biosensors within a case in a stacked manner, comprising:

5 sensor send-out means for sending out the biosensor in the case one by one and discharging the biosensor from a sensor ejecting port opened at the case.

2. The biosensor cartridge according to claim 1, wherein the sensor send-out means comprises a cylindrical
10 rotating member rotated by an external sensor sending out mechanism, and a sliding member, engaged so as to be slidable with respect to the rotating member, for sliding with the rotation of the rotating member and pushing a rear end of the biosensor at the bottom layer.

15 3. The biosensor cartridge according to claim 2, wherein a spiral groove for engaging the sliding member is formed at a cylindrical surface of the rotating member.

4. The biosensor cartridge according to claim 3, wherein the spiral groove is formed over a range of not
20 lower than 360° around a rotating shaft of the rotating member.

5. The biosensor cartridge according to claim 2, wherein a sealing member for sealing an opening formed in the case is formed at an end part of the rotating member,
25 the opening being formed in the case to support the rotating member.

6. The biosensor cartridge according to claim 2, wherein the case is partitioned to a biosensor storing chamber for storing the plurality of biosensors in a
30 stacked manner, and a sliding member housing chamber for housing the sliding member resting at an initial position, at where the rear end of the biosensor in the biosensor storing chamber can be pushed, with a partition wall including an opening having a narrower width than the
35 biosensor.

7. The biosensor cartridge according to claim 6,
wherein the opening of the partition wall is set to a width
so that a projection formed on the sliding member is able
to pass through to push the rear end of the biosensor at
5 the bottom layer.

8. The biosensor cartridge according to claim 2,
wherein a concave part corresponding to an outer shape of
valve means for opening and closing the sensor ejecting
port is provided on an exterior surface of the case
10 including the sensor ejecting port.

9. The biosensor cartridge according to claim 1,
wherein the sensor send-out means includes a sliding member
sled by an external sensor sending out mechanism to push a
rear end of the biosensor at the bottom layer.

15 10. The biosensor cartridge according to claim 9,
further comprising a seal plate for opening and closing the
sensor ejecting port in synchronization with a sensor
discharging operation by the sliding member.

11. The biosensor cartridge according to claim 10,
20 wherein the seal plate is opened by the sliding member.

12. The biosensor cartridge according to claim 11,
further comprising a spring member for pressing the seal
plate towards the sensor ejecting port, wherein the sliding
member is arranged under the biosensor closer to the sensor
25 ejecting port than the front end of the biosensor when the
sliding member is at an initial position at where the rear
end of the biosensor at the bottom layer can be pushed,
guides the biosensor towards the sensor ejecting port
during the sensor discharging operation and includes a
30 projection for moving the seal plate against a spring
member.

13. The biosensor cartridge according to claim 10,
wherein the seal plate includes an elastic sealing member
pressure welding against an exterior surface of the case
35 around the sensor ejecting port.

14. The biosensor cartridge according to claim 13, further comprising a small projection to which the elastic sealing member is pressure welded at an exterior surface of the case around the sensor ejecting port.

5 15. The biosensor cartridge according to claim 9, further comprising a sealing member for sealing an opening formed in the case for an external sensor sending out mechanism coupled to the sliding member when the sliding member is at the initial position at where the rear end of
10 the biosensor can be pushed.

16. The biosensor cartridge according to claim 9, further comprising returning means for returning the sliding member to the initial position at where the rear end of the biosensor can be pushed.

15 17. The biosensor cartridge according to claim 9, wherein the sliding member includes a projection arranged under the biosensor when at the initial position at where the rear end of the biosensor can be pushed.

18. The biosensor cartridge according to any one of
20 claims 1, 2 and 9, wherein the case is partitioned to a biosensor storing chamber for storing the plurality of biosensors in a stacked manner and a desiccant storing chamber for storing a desiccant with a partition wall, and is formed with an air flow path communicating between both
25 storing chambers.

19. The biosensor cartridge according to claim 18, wherein a partition wall is provided in the desiccant storing chamber, an air flow path connected to the air flow path communicating to the biosensor storing chamber is
30 formed, and the desiccants are stored along the air flow path.

20. The biosensor cartridge according to claim 19, wherein the desiccant is molded as a single body or is divided into a plurality of parts so as to correspond to
35 the shape of the air flow path in the desiccant storing

chamber.

21. The biosensor cartridge according to any one of claims 1, 2 and 9, further comprising a hold-down plate arranged on the biosensor so as to slidably contact the interior surface of the case along a stacked direction of the biosensor, and an elastic body for holding down the biosensor in the stacked direction through the hold-down plate.

22. The biosensor cartridge according to claim 9, wherein the biosensor has a step-shape in which a thickness is large at a front end and small at a rear end, and the sliding member for pushing the rear end of the biosensor includes a concave part for holding the rear end having a small thickness.

23. The biosensor cartridge according to claim 21, wherein the biosensor has a step-shape in which a thickness is large at a front end and small at a rear end, and the elastic body for holding down the biosensor through the hold-down plate is arranged on a back surface of the hold-down plate at a portion corresponding to the front end region having a large thickness.

24. A biosensor dispensing device comprising:

a cartridge storing chamber detachably holding a biosensor cartridge for storing a plurality of biosensors in a case in a stacked manner and including sensor send-out means for sending out the biosensor in the case one by one and discharging the biosensor from a sensor ejecting port opened at the case;

a sensor sending out mechanism for driving the sensor send-out means in the biosensor cartridge; and

a sensor conveying mechanism for conveying the biosensor discharged from the sensor ejecting port by the sensor send-out means to a predetermined test position at where a sample can be applied, inside a body; and

an operating part for turning the sensor sending out

mechanism ON and OFF outside the body in an exposed manner.

25. The biosensor dispensing device according to claim 24, further comprising sensor conducting means for pressing and holding the biosensor conveyed to the test
5 position and conducting the biosensor to an electrical circuit within the body.

26. The biosensor dispensing device according to claim 25, wherein a display unit is provided on an exterior surface of the body in order for acquiring electrical data
10 from the biosensor conveyed to the test position through the electrical circuit within the body, and displaying the data.

27. The biosensor dispensing device according to any one of claims 24 to 26, wherein the cartridge storing
15 chamber can hold the biosensor cartridge including a cylindrical rotating member and a sliding member sliding with the rotation of the rotating member to push the rear end of the biosensor as sensor send-out means, the sensor sending out mechanism includes a rotating means for
20 rotating the rotating member of the biosensor cartridge, and the operating part is configured so as to move the sensor sending out mechanism with a forefinger while gripping the body with one hand.

28. The biosensor dispensing device according to
25 claim 27, wherein the operating part freely exits from the body, and when pushed into the body, operates the sensor sending out mechanism.

29. The biosensor dispensing device according to claim 28, wherein the sensor sending out mechanism drives
30 the sensor send-out means to discharge the biosensor in a direction opposite the direction of pushing in the operating part.

30. The biosensor dispensing device according to
claim 27, further comprising valve means for opening and
35 closing the sensor ejecting port opened at the case of the

biosensor cartridge.

31. The biosensor dispensing device according to claim 30, wherein the valve means is a roller rolling over the exterior surface of the case including the sensor
5 ejecting port.

32. The biosensor dispensing device according to claim 30, wherein the sensor conducting means and the valve means are gear-coupled to the sensor sending out mechanism.

33. The biosensor dispensing device according to
10 claim 32, wherein each link member supporting the sensor conducting means and the valve means each on one end is axially supported on the body, and a cam for holding and turning the other end of each link member is provided on the operating part.

15 34. The biosensor dispensing device according to any one of claims 24 to 26, wherein with one operation of the operating part, the biosensor is conveyed to the test position, is conducted to the electrical circuit within the body, and set to a test state.

20 35. The biosensor dispensing device according to claim 34, wherein a power source of the body is driven when the biosensor is set to the test state.

36. The biosensor dispensing device according to claim 34, wherein the biosensor at the test position is
25 discharged out of the body with the operation of the operating part after the biosensor is set to the test state.

37. The biosensor dispensing device according to claim 27, further comprising a cartridge holding mechanism
30 for unremovably holding the biosensor cartridge during the operation of the operating part.

38. The biosensor dispensing device according to claim 37, wherein the cartridge holding mechanism is gear-coupled to the operating part.

35 39. The biosensor dispensing device according to

claim 28, further comprising detection means for detecting the return of the operating part to the initial position.

40. The biosensor dispensing device according to claim 39, wherein the detection means recognizes a contact
5 with a member configuring one part of the operating part.

41. The biosensor dispensing device according to claim 27, wherein the sensor sending out mechanism includes connection switching means for connecting or releasing connection with respect to the sensor send-out means of the
10 biosensor cartridge in cooperation with the opening/closing operation of a lid body that opens/closes the cartridge storing chamber when attaching/detaching the biosensor cartridge.

42. The biosensor dispensing device according to
15 claim 27, wherein a nail member is provided on the operating part in an oscillating manner, a sliding path on which a distal end of the nail member slides is formed in an inner wall of the body, and a saw-blade concavo-convex part for locking the distal end of the nail member and
20 positionally fixing the operating part when the operation of the operating part is stopped is arranged on the sliding path.

43. The biosensor dispensing device according to claim 42, wherein the sliding path is configured in a loop-
25 form by arranging, in series, an outward path on which the distal end of the nail member slides when the operating part is pushed in and a homeward path on which the distal end of the nail member slides when the operating part returns to the initial position, and the saw-blade concavo-
30 convex part is arranged on the outward path.

44. The biosensor dispensing device according to claim 27, further comprising a latch mechanism for locking the operating part at a position at where the biosensor is set to the test state with respect to the body.

35 45. The biosensor dispensing device according to

claim 44, wherein as the latch mechanism, a latch projection is provided on the operating part and a latch body part for locking the latch projection is provided in the body.

5 46. The biosensor dispensing device according to any one of claims 24 to 26, wherein the cartridge storing chamber can hold the biosensor cartridge including a sliding member for pushing the rear end of the biosensor as the sensor send-out means, the sensor sending out mechanism
10 includes a pushing member for pushing and sliding the sliding member of the biosensor cartridge, and the operating part is configured so as to electrically operate the sensor sending out mechanism.

15 47. The biosensor dispensing device according to claim 46, wherein the biosensor cartridge includes a seal plate for opening the sensor ejecting port only when discharging the biosensor.

20 48. The biosensor dispensing device according to claim 46, wherein the pushing member of the sensor sending out mechanism freely exits towards the sliding member of the biosensor cartridge and includes detection means for detecting an operation stroke of the pushing member.

25 49. The biosensor dispensing device according to claim 46, further comprising detection means for detecting a position of the biosensor conveyed to a predetermined test position by the sensor conveying mechanism.

30 50. The biosensor dispensing device according to claim 46, wherein the sensor sending out mechanism and the sensor conveying mechanism are independently operable.